1. Laboratory experiments of A. S. Popov for the period 1895-1896

At the end of 1894, prof. Lodge publishes his famous work on a new method for detecting Goertz rays and gives his reader a grateful research topic.

A strong impression is made by this work by A. S. Popov. Indeed, in his beloved field, new successes were obtained, a new method of research was discovered.

Of course, all this made A. S. in the first free time (in the spring of 1895) reproduce those described by prof. Lodge experiences. As you know, in these experiments for the first time, the prof. Branly property of metal filings to change resistance under the influence of an electric spark. Precisely copied tubes with metal powder did not differ in sufficient constancy. The first experiments clearly convinced A.S. that the constancy of the action of the powder mainly depends on the correctness of those shocks that the sawdust should receive after each electrical pulse. This weak spot was immediately noticed by A. S. and all his efforts were directed in this direction. After persistent experiments, it was possible to find out that the correctness of the blows can be obtained only if the chain of the shaker is separated from the circuit of the sensitive tube.

So the famous scheme was created, which laid the foundation for the work of telegraphy without wires.

Finishing experiments this spring, A. S. managed to detect atmospheric electricity with his device. A thin, copper wire raised with a toy ball was attached to the device. Under the influence of wind, the ball changed its height and the device clearly detected a change in potential at the end of the wire. Before leaving for Nizhny Novgorod A.S. transferred his instrument to the Forest Institute.

So, the results of A. S.'s first works can be summarized as follows: a circuit was created that was used to detect atmospheric electricity; the sensitive tube included in this circuit contained iron filings poured onto platinum electrodes. A description of it, in December 1895, A. S. Popov concludes with his famous words: "In conclusion, I can express the hope that my device, with its further improvement, can be applied to transmitting signals at a distance using fast electrical vibrations, like only a source of such vibrations with sufficient energy will be found. "

The next school season of 1895-96 is remembered by everyone. The discovery of X-rays made everyone intensively study this amazing phenomenon and temporarily forget their work. This distracted A.S. from the trials he had just begun. However, among the hard work, A. S. finds time and designs a device for reproducing Goertz's experiments, and in the spring of 1896 he demonstrates these experiments at a meeting of the Russian Physical-Chemical Society.

The purely laboratory, preparatory work of A.S. ends with the described experiments, and the next year the experiments are already transferred to more normal conditions - to the ship's environment.